



OFFICE OF THE
CITY AUDITOR

A CONTROL REVIEW OF INFORMATION SYSTEMS CONTINGENCY PLAN

- THE INFORMATION SYSTEMS DEPARTMENT'S CONTINGENCY PLAN
FOR THE ORDERLY CONTINUATION OF COMPUTER PROCESSING
FOR CRITICAL ACTIVITIES NEEDS TO BE UPDATED

A REPORT TO THE
SAN JOSE
CITY COUNCIL
NOVEMBER 1987

87-08



GERALD A. SILVA
City Auditor

CITY OF SAN JOSÉ, CALIFORNIA

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November 12, 1987

Honorable Mayor and Members
of the City Council
801 North First Street, Room 600
San Jose, CA 95110

Transmitted herewith is a report on *A Control Review Of Information Systems Contingency Plan*. This report is in accordance with City Charter Section 805.

An Executive Summary is presented on the blue pages in the front of this report while an Administration response is shown on the yellow page.

I will present this report to the Finance Committee at its November 18, 1987 meeting. If you need additional information in the interim, please let me know. City Auditor staff who participated in the preparation of this report is Charles Christensen.

Respectfully submitted,

Gerald A. Silva
City Auditor

EXSUM001
GS:mlt

cc: Gerald Newfarmer, City Manager
Les White, Assistant City Manager
Susan George, Deputy City Manager
Tim Wei, Director of Information Systems
Tom Mounts, Office of Emergency Services
Joan Gallo, City Attorney

A CONTROL REVIEW OF
INFORMATION SYSTEMS
CONTINGENCY PLAN

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EXECUTIVE SUMMARY

In accordance with the City Auditor's approved 1987-88 Workplan, we initiated a review of the City's contingency plans for critical Information Systems Department electronic data processing (EDP) activities.

THE INFORMATION SYSTEMS DEPARTMENT'S EXISTING CONTINGENCY PLAN FOR THE ORDERLY CONTINUATION OF COMPUTER PROCESSING FOR CRITICAL ACTIVITIES NEEDS TO BE UPDATED

It is generally accepted that modern business and government organizations need to determine if any of their electronic data processing (EDP) activities are critical to their operations and prepare a contingency plan for any critical systems. Such a plan should specify when, where, and how critical EDP activities will be performed if all or part of the computer system becomes dysfunctional. The Information Systems Department operates three types of computer facilities. Our review revealed that 1) a written contingency plan exists for only one type of facility, 2) the existing plan needs to be updated, and 3) there may be other critical EDP activities not included in the existing plan. As a result, the City is exposed to the risk that critical EDP activities may be lost to the City for periods of time that exceed tolerable limits. The City Administration recognizes the need to prepare contingency plans for critical EDP applications and has already started the process.

RECOMMENDATIONS

We recommend that:

Recommendation #1

The Information Systems Department review the existing "Information Systems Contingency Plan" to determine that the plan includes all the elements currently required, and complete the update of that plan by March 1988. (Priority 2)

Recommendation #2

The City Manager support and emphasize the need to identify and prepare contingency plans for all critical EDP applications in addition to those the "Information Systems Contingency Plan" currently covers. EDP applications processed either in or outside of the Information Systems Department should be evaluated to determine if they require inclusion in the "Citywide Contingency Plan," which is planned for completion by September 1988. (Priority 2)

INTRODUCTION

This report covers our limited review of the electronic data processing contingency plans the Information Systems Department implements and maintains. This review was included in the City Auditor's approved audit workplan for 1987-88. We conducted this review in accordance with generally accepted government auditing standards, and limited our work to those areas specified in the Scope and Methodology section of this report.

SCOPE AND METHODOLOGY

The scope of this review was limited to evaluating the City's contingency plans for critical Information Systems Department (Department) EDP activities. Based upon the Department's responses to our initial inquiries concerning the status of the Department's contingency plan, we determined that the existing plan needs updating. We terminated our review and issued this report when the Department agreed to update the plan by March 1988.

Our review did not address the use of computer service bureaus, personal microcomputers or minicomputers located outside of the Information Systems Department. The City Administration plans to survey all City operations for possible inclusion in the proposed Citywide Contingency Plan. Such a survey should identify any EDP activities that operating departments consider critical enough to be included in the contingency plan.

FINDING I

THE INFORMATION SYSTEMS DEPARTMENT'S EXISTING CONTINGENCY PLAN FOR THE ORDERLY CONTINUATION OF COMPUTER PROCESSING FOR CRITICAL ACTIVITIES NEEDS TO BE UPDATED

It is generally accepted that modern business and government organizations need to determine if any of their electronic data processing (EDP) activities are critical to their operations and prepare a contingency plan for any critical systems. Such a plan should specify when, where, and how critical EDP activities will be performed if all or part of the computer system becomes dysfunctional. The Information Systems Department operates three types of computer facilities. Our review revealed that 1) a written contingency plan exists for only one type of facility, 2) the existing plan needs to be updated, and 3) there may be other critical EDP activities not included in the existing plan. As a result, the City is exposed to the risk that critical EDP activities may be lost to the City for periods of time that exceed tolerable limits. The City Administration recognizes the need to prepare contingency plans for critical EDP applications and has already started the process.

The Need For EDP Contingency Plans

Advances in technology have produced computers with greater capabilities at less cost. This has encouraged the use of, and dependence on, computers to perform more work tasks. In some

cases, the economies and capabilities of electronic data processing have dictated that manual work systems be redesigned in order to achieve optimum computer performance. Under such circumstances, it may not be practical, or even possible, to replace computer processes with manual work processing methods. These conditions dictate that the prudent organization prepare a contingency plan that specifies when, where and how critical EDP activities will be performed, if all or part of the computer system becomes dysfunctional. At a minimum, the organization should identify those EDP tasks that are critical to the organization's mission and determine the maximum allowable time that is tolerable for the loss of such tasks. A plan must then be developed and implemented to accommodate the possible loss of those critical work processes which are beyond tolerance limits. Such a plan is usually called a "contingency plan" or "disaster plan."

The American Management Association's publication, "SAFE: Security Audit and Field Evaluation for Computer Facilities and Information," includes the following elements among those that should be included in a contingency plan:

1. Identification and prioritization of critical work processes.
2. Identification of disaster levels and/or expected durations of loss of use of the regular processing facilities which will trigger implementation of the contingency plan for critical EDP activities.

3. Replacement of computer hardware (such as central processors, tape/disk drives, printers, data entry units, communications controllers).
4. Replacement of the computer programs which make the computer hardware useable (such as operating systems, communications programs).
5. Replacement of communications networks (such as telephone lines and switches, satellite channels).
6. Replacement of work process computer programs and master files (such as payroll, accounting, mapping system).
7. Replacement of documentation for all hardware and computer programs (such as hardware manuals, operating system manuals, communications system manuals, payroll system documentation and instructions for the computer processing of each job).
8. Replacement of supplies (such as tapes/disks, multi-part computer paper, special forms such as checks).

*Current Computer Facilities in the
Information Systems Department*

We found that the Department operates the following distinct types of centralized computer facilities:

1. The Wang batch processing facility,
2. The Digital Equipment Corporation on-line processing facility, and
3. The Wang on-line word processing facility (a portion of which also provides the Wang batch processing facility).

The Wang batch processing facility was implemented in the summer of 1987. It replaced the Burroughs facility which the City had used for over 10 years (with various upgrades during those years). This facility's processing includes the City's accounting and payroll systems. The existing contingency plan was prepared for these two systems as processed on the Burroughs facility.

The Digital Equipment Corporation on-line processing facility includes maintaining the City's geographic and mapping information and providing support to some purchasing activities. There is no written contingency plan for any of the activities processed on this facility.

The Wang word processing facility includes supporting the City's employment function in addition to providing the City with on-line word processing capability. There is no written contingency plan for any of the activities processed on this facility.

As is noted above, a written contingency plan has been prepared for only one of the three Information Systems Department centralized computer facilities.

Existing Contingency Plan Needs To Be Updated

The existing Information Systems Contingency Plan was prepared in 1980 for critical work processes performed on the Burroughs computer. These processes were recently transferred to the Wang computer facilities. As a result of the transfer, the contingency plan needs to be updated to match the requirements of the Wang computer facility. The City Administration recognizes this requirement and has already started the process of updating the 1980 plan. The plan update will cover the two

work processes identified as critical in the original plan -- payroll and the general accounting system. The City Administration projects a completion date of March 1988. (See memorandum from City Administration in Appendix A.)

*Additional Critical Activities
May Require A Contingency Plan*

The City's use of computers has increased since the 1980 contingency plan was produced. Some of that increase is in the use of on-line systems rather than the batch processing mode for which the 1980 plan was prepared. The City Administration recognizes the possible implications of these increases and changes in the use of computers. The Administration plans to deal with the possibility of currently unidentified "critical EDP applications" and/or critical computer processing facilities as part of the on-going work of the Office of Emergency Services. This Office is responsible for producing a Citywide Contingency Plan by September 1988. (See memorandum from City Administration in Appendix A.)

The process of developing the Citywide Contingency Plan is expected to include the identification and provision of necessary contingency plans for all critical EDP applications beyond the payroll and the general accounting system. This identification process would include the possibility that critical EDP

applications may exist outside of the Information Systems Department's centralized computer facilities (such as those applications processed on another organization's micro- or minicomputer). Examples of organizations that have their own computers are the Airport, Library and Police Departments.

CONCLUSION

The Department's existing Information Systems Contingency Plan is not current because the two critical EDP applications covered by the plan were recently transferred from a Burroughs to a Wang batch processing facility. Work has begun on updating the plan which the City Administration projects to complete by March 1988. In addition, the Office of Emergency Services is preparing a Citywide Contingency Plan. As part of the citywide project, efforts will be made to determine if additional critical EDP applications exist either in or outside of the Information Systems Department and to provide any necessary additional contingency plans.

RECOMMENDATIONS

We recommend that:

Recommendation #1:

The Information Systems Department review the existing "Information Systems Contingency Plan" to determine that the plan includes all the elements currently required, and complete the update of that plan by March 1988. (Priority 2)

Recommendation #2:

The City Manager support and emphasize the need to identify and prepare contingency plans for all critical EDP applications in addition to those the "Information Systems Contingency Plan" currently covers. EDP applications processed either in or outside of the Information Systems Department should be evaluated to determine if they require inclusion in the "Citywide Contingency Plan," which is planned for completion by September 1988. (Priority 2)

CITY OF SAN JOSE - ME

Yellow

TO: Gerald Silva
City Auditor

FROM:

SUBJECT: RESPONSE TO CONTINGENCY PLAN AUDIT

DATE:

APPROVED

DATE

Information Systems has studied the control review of the Contingency Plan and would like to offer the following responses to the recommendations included in that report.

Recommendation #1:

The Information Systems Department review the existing "Information Systems Contingency Plan" to determine that the plan includes all the elements currently required and complete the update of that plan by March, 1988.

Response:


The revision of the current Contingency Plan to accommodate the change in the operating environment is well under way and should be completed by March 31, 1988.

Recommendation #2:

The City Manager support and emphasize the need to identify and prepare contingency plans for all critical EDP applications in addition to those the "Information Systems Contingency Plan" currently covers. EDP applications processed either in or outside of the Information Systems Department should be evaluated to determine if they require inclusion in the "Citywide Contingency Plan" which is planned for completion by September, 1988.

Response:

We concur with this recommendation. The Citywide Contingency Plan should be in place by September 30, 1988.


LES WHITE
Assistant City Manager

LW:TK/rm
(16551)

RECEIVED
NOV 12 1987

CITY AUDITOR

CITY OF SAN JOSE - MEMORANDUM

APPENDIX A

TO:
SUBJECT:

White

Auditor

FROM: Les White

DATE: August 17, 1987

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AUG 18 1987

CITY AUDITOR

APPROVED

DATE

On July 30, 1987, you notified the administration of your intent to perform a controls review of the Information Systems' contingency plan. Subsequently, on August 12 you also requested a contingency plan for inventory of status of plan components.

Since the Administration is in the process of developing a citywide contingency plan, I felt it is important to share the relevant background information specifically concerning the Information Systems portions of the plan.

- 1) The existing "Information Systems Contingency Plan" established in 1980 covers only "critical EDP Applications" on the Burroughs Computer; and is out of date due to the fact that the City has just phased out the Burroughs computer last month. Information Systems is in the process of updating the plan but the effort will not be completed until early March 1988.
- 2) A large number of online computer applications have been acquired by the City departments since 1980; information systems contingency plan for these online systems should be a part of the citywide effort. The Citywide Contingency Plan is anticipated to be completed in September 1988.

With the above background in mind, it appears that the following Audit review options are open to your office:

- 1) Perform the controls review after September 1988 when all components of the contingency plan are completed.
- 2) Perform the controls review after the "1980 Critical Application Systems Contingency Plan" have been brought up to date.
- 3) Perform the controls review of the 1980 Plan now and recognize that components of the plan are rapidly changing due to updating activities.

My own feeling is that the first two options will allow us to utilize limited staff resources more effectively. We are prepared to cooperate with your office should you decide to elect option three above.


LES WHITE
Assistant City Manager

LW:TW:ja(12111)